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ABSTRACT

This study examined the social competence and academic achievement of 248 children who were enrolled in public schools in Washington, D.C. Of the children in the 77% recovered sample, 96 percent were African American, 68 percent had attended both prekindergarten and kindergarten, and 32 percent had attended kindergarten only. The prekindergartens followed one of three approaches: a child-initiated approach, an academically directed approach, or an approach intermediate between the other two. The kindergartens followed one of two approaches: a moderately academic (MA) approach, and an approach that stressed the importance of children's socioemotional (SE) development. Measures of school competence included grade retention and special education placement. Measures of student achievement included grades, scores on standardized achievement tests, and attainment of reading and math objectives. No differences were found in grade retention between children who had attended prekindergarten and those who had attended kindergarten only. Among children who had attended kindergarten only, those who had attended the MA kindergarten were three times as likely as those who had attended the SE kindergarten to be retained at the end of their fifth year in school. Among children who had attended prekindergarten, boys were more likely than girls to be retained prior to third grade. The reverse was true for children who had attended kindergarten only. Boys who had attended the SE kindergarten earned higher grades during their fifth year in school than did boys who had attended the MA kindergarten. The reverse was true for girls. (BC)

Differential Effects of Preschool Models on Inner-City Children: Following the 'Class of 2000' at Year Five

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Abstract

School competence and student achievement of 248 previously studied children were examined for enduring effects of differential early educational experiences. The 77% recovered sample was 96% African American, 54% female, and 77% low SES. Though grade retentions were high (23%), few differences related to type of early experience were found. Significantly more boys (32%) than girls (11%) who attended PK were retained prior to third grade. Negative effects of didactic, academically-directed PK showed up in behavior and reduced student achievement 5 years later. At follow-up, consistent gender by K model interactions found boys who attended PK achieved at higher levels if their K teachers valued socioemotional development. A combination of early approaches that fosters achievement in at-risk boys was noted.

Differential Effects of Preschool Models on Inner-City Children:

Following the 'Class of 2000' at Year Five

Although research supports the benefits of quality early education programs for children from low-income families (e.g., Lazar et al., 1982), not all curriculum models currently in use would be considered developmentally appropriate and some experts (e.g., Elkind, 1986; Zigler, 1986) fear inappropriate methods may be detrimental to future learning motivation. Furthermore, longitudinal studies by Schweinhart, Weikart, and Larner (1986) and Miller and Bizzell (1984) found preschool didactic models had long-term negative effects on adolescent social behavior and school achievement. It can no longer be assumed that any preschool curriculum will achieve positive results and research efforts to find more effective matches between curriculum and child characteristics are needed (Powell, 1987).

The present research was a follow-up study of children from a large urban school district that had widely implemented public pre-kindergarten. Based upon this study's earlier findings of differential program effects on development and early skills acquisition in three cohorts of four-year-olds, policy makers have noticeably reformed preschool programs to reflect more developmentally appropriate practices. As the first cohort reached the critical transition between primary and upper elementary grades, student achievement and markers of school competence were examined for enduring effects of early educational experiences. The high dropout rate in this urban district and known presence of dropout predictors as early as the third grade (Lloyd, 1978) made the current study of special preventative interest.

Method

Sample

A total of 248 children (mean age=107.6 mos) enrolled in 76 public schools in Washington, DC were studied. Prior to entering first grade, 68% of the sample attended both pre-kindergarten (PK) and kindergarten (K) and the remaining 32% served as same-sex, matched K-only controls. The sample was 96% African American and 54% female. Most children (77%) qualified for subsidized lunch based upon low family income and 68% lived in single parent homes. Since first studied, 44% had moved to another school and 23% had been retained prior to third grade.

Recovery Rate

Recovery rate was 76.5% of the original sample (80% of PK children, 70% K-only controls), with 94% of children last studied as first graders recovered. The recovered PK sample had more African American children ($p < .01$) who were poorer ($p < .001$) and more likely to live in single parent families ($p < .01$). These differences were consistent with district-wide changes in enrollment patterns following kindergarten. The recovered K-only control sample was more likely to live in two parent families ($p < .05$). Neither sample differed significantly from the original in terms of gender, age, parental involvement, or grades earned in PK or K. Fewer Model CI ($p = .10$) and ModAcK/SE ($p = .08$) females were recovered.

Preschool and Kindergarten Models

Three different PK models and two different K models were previously identified using cluster analysis of a survey measuring teacher beliefs and practices (Marcon, 1988). At the PK level, Model CI teachers represented an

active, child-initiated approach to early learning; Model AD teachers ran more didactic, academically-directed programs with direct teacher instruction; and Model M teachers fell in-between the other two opposing models and endorsed more middle-of-the-road beliefs and practices. At the K level, Model ModAcK teachers endorsed moderately academic kindergartens but believed academic preparation was a more important goal of K than socioemotional development; and Model ModAcK/SE teachers were also moderately academic in their approach, but valued socioemotional development as a goal of kindergarten.

Procedure

Measures of school competence (retention, special education placement) and student achievement (grades, standardized achievement test scores, reading and math objectives) were analyzed for effects of PK model, K model, gender, and interaction between variables. A covariate (eligibility for subsidized school lunch) was used to control for possible economic differences.

Results

School Competence

Only 1% of the sample received special education services. Twice as many K-only controls were enrolled compared to children who had attended PK. No children from ModAcK/SE kindergartens had been placed in special education.

The large number of grade retentions (23%) reflected the district's policy to defer special education placement until the later grades. Although more K-only controls had been retained (28%), this difference was not significant. While none of the PK children were retained in K, 7% of the K-only children who were retained had repeated kindergarten. No differences in likelihood of retention were found for the different PK or K models. However,

among K-only controls nearly three times as many children from ModAcK (14% vs. 5%) were being retained at the end of 'Year Five.' Significantly more boys (32% vs. 11% of girls) who had attended PK had been retained prior to third grade ($\chi^2(1)=10.56$, $p < .001$). The reverse was found among K-only controls (36% of girls vs. 19% of boys, $\chi^2(1)=2.38$, $p = .12$). No sex differences were found for children being retained at the end of the current year.

Student Achievement

Progress Reports. Although PK children earned higher grades than K-only controls in all 'Year Five' subjects, these differences were insignificant except for citizenship grades earned by girls [$t(26)=2.65$, $p < .01$) and Model M children [$t(26)=2.74$, $p < .01$).

With the exception of citizenship grades, no significant differences between PK models were found in 'Year Five' grades. Children from the more didactic Model AD programs received lower grades (mean=1.85) in citizenship [$F(2,94)=4.46$, $p < .01$]. Progress of third graders who had never been retained also showed lower grades for former Model AD children [MANOVA wilks=.7444, $F(14,150)=1.70$, $p = .06$] for math ($p = .06$), reading ($p = .07$), language ($p=.10$), social studies ($p < .05$), and science ($p = .07$).

No significant differences between K models were found in 'Year Five' grades of PK children. A PK x K interaction was found for citizenship grades [$F(2,60)=2.95$, $p = .06$], with Model CI children doing better in ModAcK/SE kindergartens and Model M and AD children doing better in ModAcK programs. This finding reflected continuity of program emphasis. For K-only controls, higher current year grades were found for ModAcK children [MANCOVA wilks=.7585, $F(4,33)=2.63$, $p < .05$] in art ($p < .05$), music ($p < .05$) and

citizenship ($p < .05$).

Although girls had previously earned significantly higher grades than boys in PK and K, no differences were found in current grades for either PK or K-only children. However, as reported in Tables 1 and 2, a consistent pattern of interaction between gender and kindergarten model was identified for PK children. In general, boys who had attended socioemotional kindergartens earned higher 'Year Five' grades than did boys whose kindergarten experience focused on academic preparation. The reverse was true for girls.

Standardized Achievement Tests. While PK children scored higher than controls on 11 of 14 measures in the Comprehensive Test of Basic Skills (CTBS), these differences were only significant for girls' reading scores ($t=1.91$, $p = .07$) and Model M reading ($t=2.42$, $p < .05$), language ($t=2.16$, $p < .05$), and total battery scores ($t=2.27$, $p < .05$). Differences between PK models were found for CTBS total reading scores [$F(2,90)=2.52$, $p = .08$], vocabulary [$F(92,90)=2.99$, $p < .05$], and math concepts [$F(2,91)=3.24$, $p < .05$], with Model AD children scoring lowest. No significant differences in CTBS scores attributable to K model were found.

Girls who attended PK outscored boys on all CTBS measures. Among K-only controls the reverse was true, with boys outscoring girls on all but two CTBS measures (language mechanics and social studies). None of these differences were statistically significant. However, as reported in Table 2, the same pattern of interaction between gender and kindergarten model was found for PK children. Former ModAcK/SE boys scored higher on CTBS measures than ModAcK boys. While the reverse was true for girls, their CTBS differences were less striking than those of boys.

Objectives Checklists. No differences were found between PK and K-only children in the number of third grade (2nd semester) math and reading objectives passed. There was a trend [$F(2,58)=2.76$, $p=.07$] for Model AD to pass fewer 3rd grade reading objectives (76%) compared to Model CI (84%) and Model M (87%) children. The same was true for 3rd grade math objectives [$F(2,21)=2.34$, $p=.12$], with Model AD passing 81% compared to 90% and 94% for Models CI and M respectively. No differences in pass rate attributable to K model were identified. With the exception of K-only reading objectives (boys exceeded girls by 15%, $F(1,27) = 3.1$, $p = .08$), no differences between girls and boys were noted on this measure of student achievement.

Discussion

The consistent finding that boys who attended PK achieved at higher levels five years later if their kindergarten teachers valued socioemotional development has important implications. Because "over-age for grade" is the most critical predictor of future dropout status, and significantly more boys than girls in this inner-city school district are routinely retained, it is essential to find combinations of approaches that foster achievement in boys. Apparently some boys still need the special kind of nurturing experiences available in ModAcK/SE classrooms. This may be especially true for boys growing up in single parent families, the predominant home situation of this study's PK children. The K-only control boys, who were more likely to live in two parent families, did not exhibit the same pattern. They, along with girls in this study, may have adapted more readily to academic demands.

How easily children make the transition to upper elementary grades and the new demands to think and act will be the focus of future follow-up

studies. Already the negative effects of earlier didactic approaches have shown up in behavioral indices (i.e., lower citizenship grades) and reduced student achievement in former Model AD children. Will the nurturing kindergarten experience continue to inoculate boys against the risk of dropping out? Time will tell. Unfortunately, we no longer have the luxury of time in our inner-city schools, and leadership must act upon the best available information when making decisions for children. The current study continues to provide policy makers with the type of data needed to distinguish between curriculum options for young children.

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Table 1

'Year Five' Progress Report Grades (Means Adjusted for SES Covariate)
Interaction between Gender and K Model for Children Who Attended PK

		ModAcK/SE	ModAcK	Gender x K Model
Overall G.P.A.	F	2.47	2.74	F (1,120) = 4.54, $p < .05$
	M	2.58	2.19	
Subject Areas				
Math	F	2.02	2.46	F (1,120) = 2.96, $p = .08$
	M	2.22	1.84	
Reading	F	1.94	2.63	F (1,120) = 9.19, $p < .01$
	M	2.41	1.67	
Language	F	2.23	2.72	F (1,120) = 5.11, $p < .05$
	M	2.53	2.10	
Spelling	F	2.02	2.80	F (1,120) = 5.50, $p < .05$
	M	2.90	2.18	
Handwriting	F	2.51	2.78	ns
	M	2.64	2.30	
Social Studies	F	2.44	2.69	F (1,120) = 5.27, $p < .05$
	M	2.65	2.10	
Science	F	2.64	2.52	ns
	M	2.76	2.23	
Art	F	2.91	2.93	ns
	M	2.85	2.57	
Music	F	2.93	2.83	ns
	M	2.43	2.64	
Health/PE	F	3.01	2.87	ns
	M	2.96	2.79	
Citizenship	F	2.64	2.16	F (1,94) = 2.72, $p = .10$
	M	2.93	1.89	

Table 2

'Year Five' CTBS Achievement Test Scores (Means Adjusted for SES Covariate) Interaction between Gender and K Model for Children Who Attended PK

		ModAcK/SE	ModAcK	Gender x K Model
Total Reading	F	52.93	57.61	F (1,90) = 6.42, $p < .01$
	M	57.73	46.60	
Word Attack	F	56.54	58.79	F (1,90) = 5.57, $p < .05$
	M	58.03	50.88	
Vocabulary	F	56.01	59.07	F (1,90) = 4.76, $p < .05$
	M	59.09	48.49	
Comprehension	F	50.78	54.91	F (1,90) = 5.82, $p < .01$
	M	55.17	45.12	
Total Language	F	55.94	62.56	F (1,92) = 2.99, $p = .08$
	M	57.22	48.73	
Spelling	F	49.94	60.12	F (1,91) = 8.81, $p < .01$
	M	62.85	51.04	
Language Mechanics	F	58.54	63.24	F (1,91) = 5.18, $p < .05$
	M	66.78	52.50	
Language Expression	F	52.48	58.63	ns
	M	50.50	45.50	
Total Math	F	58.57	59.37	ns
	M	60.71	53.49	
Math Computation	F	60.13	59.54	ns
	M	63.82	53.69	
Math Concepts & Application	F	55.68	57.70	F (1,91) = 2.33, $p = .13$
	M	57.13	51.15	
Total Battery	F	58.21	62.61	F (1,89) = 3.52, $p = .06$
	M	60.17	49.27	
Science	F	51.28	60.54	F (1,90) = 5.64, $p < .05$
	M	62.87	49.76	
Social Studies	F	55.13	58.20	F (1,89) = 4.68, $p < .05$
	M	59.50	44.56	